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signed from the University of Chicago to join the Harvard staff, will have charge of this new work, and during the summer of 1915 will establish a camp in the San Juan Mountains of southwestern Colorado. Five weeks of introduction will be given, beginning early in August and closing about the tenth of September, and this course will be credited at Harvard University towards a degree.

The party will be limited in number, and opened only to those men who have had at least an introductory college course in geology. Under the direction of Dr. Atwood the party will actually conduct a piece of geological survey work, and at the close of the season have the opportunity of an expedition through the high mountain area. The field chosen is remarkably rich in its range of geological phenomena, in mining interests, and in scenic features. The equipment of the camp is provided for by funds furnished by the visiting committee of the department which will reduce the cost to each student to his share of the actual living and moving expenses associated with the camp, and it is estimated that these expenses will not exceed one hundred dollars for each member.

Applications for membership in this party should be addressed to Wallace W. Atwood, Harvard University, Cambridge, Mass., before May 1, 1915.

The usual field work offered in Montana and conducted under the endowment of Robert W. Sayles and under the direction of Professor J. B. Woodworth will be offered during the coming summer. That work will begin early in July, and close in time to permit those who wish to join the Colorado party. The combination of the two courses permits the student to spend ten weeks under instruction in the Rocky Mountains during the coming field season.

The following members of the visiting committee were present at the meeting when these plans were approved: Messrs. George B. Leighton, George P. Gardner, Guerdon S. Holden, Livingston Davis and J. Walter Wood.

THE SUMMER MEETING OF THE GEOLOGICAL SOCIETY OF AMERICA

THE society has accepted the invitation of the authorities of the University of California and Leland Stanford Jr. University to hold a special meeting at Berkeley and Stanford University, August 2-7, 1915, in affiliation with the American Association for the Advancement of Science. The following topics have been selected for particular discussion during the geological meetings: (1) Erosion and deposition in arid climates; (2) Diastrophism of the Pacific Coast; (3) Petrological problems of the Pacific area.

The sessions of Monday and Tuesday will be held at the University of California and that of August 4 at Stanford University.

Excursions under the leadership of local geologists will be organized during the remaining days of the week as follows:

Thursday, August 5, to Point Reyes Station, Marin County, for an examination of the San Andreas earthquake rift.

Friday, August 6, to Mussel Rock, San Mateo County, by the Ocean Shore Railway, for an examination of Pliocene strata, the type section of the Merced formation and post-Tertiary deformations of the coast.

Saturday, August 7, two excursions will be provided; one by the Oakland, Antioch & Eastern Railway (electric) to Mount Diablo for an examination of the Mount Diablo overthrust and the succession of Tertiary strata; and the second to Santa Cruz by the Southern Pacific Railway for an examination of uplifted marine terraces.

More extensive excursions may be arranged for the week following the meeting.

EDMUND OTIS HOVEY,
Secretary

SCIENTIFIC NOTES AND NEWS

DR. ADOLF VON BAEYER, professor of chemistry at Munich, being eighty years of age, has retired from the active duties of his chair.

THE Daly Medal of the American Geographical Society has been awarded to M. Paul Vidal de la Blache, professor of geography at the Sorbonne, Paris.

PROFESSOR A. BRILL, of the University of Tübingen, and M. Planck, of the University of Berlin, have been elected members of the Accademia dei Lincei of Rome.

DR. J. A. MURRAY has been appointed acting director of the British Imperial Cancer Research Fund.

DR. THEOBALD SMITH went last week to Chicago to investigate conditions among cattle that are suffering from foot and mouth disease. Dr. Smith met members of the faculty at the University of Illinois and made suggestions as to the handling of the situation by state authorities.

LEAVE of absence has been given by Royal College of Surgeons, London, to the conservator, Professor Arthur Keith, for six weeks, for the purpose of going to America to deliver a course of five lectures on anthropology at the Western Reserve University, Cleveland, Ohio.

PROFESSOR FRANCIS E. LLOYD, of McGill University, has, on account of impaired health, been granted leave of absence for the remainder of the present session. His address until September will be Carmel, California.

PROFESSOR JOHN DUTTON WRIGHT, of the Wright Oral School for the Deaf of New York City, has been elected a director of The American Association to Promote the Teaching of Speech to the Deaf.

CAPTAIN H. G. LYONS, F.R.S., has been elected president of the Royal Meteorological Society and Mr. F. Campbell Bayard and Commander W. F. Caborne secretaries for the ensuing year. The new members of the council are Mr. J. S. Dines, Mr. A. P. Jenkin and Sir J. W. Moore.

THE officers of the various sections of the New York Academy of Medicine for the year 1915 are as follows: Dermatology and syphilis, Dr. Charles M. Williams, chairman, Dr. Walter J. Heimann, secretary; surgery, Dr. Clarence A. McWilliams, chairman, Dr. John Douglas, secretary; neurology and psychiatry, Dr. Israel Strauss, chairman, Dr. Foster Ken-

nedy, secretary; pediatrics, Dr. Walter L. Carr, chairman, Dr. Royal S. Haynes, secretary; otology, Dr. C. D. Van Wagenen, chairman, Dr. John A. Robinson, secretary; ophthalmology, Dr. H. H. Tyson, chairman, Dr. George H. Bell, secretary; medicine, Dr. T. Stuart Hart, chairman, Dr. Nellis B. Foster, secretary; genito-urinary diseases, Dr. Leo Buerger, chairman, Dr. A. R. Stevens, secretary; orthopedic surgery, Dr. Arthur H. Cilley, chairman, Dr. P. W. Roberts, secretary; obstetrics and gynecology, Dr. LeRoy Broun, chairman, Dr. George W. Kosmak, secretary; laryngology and rhinology, Dr. Hubert Arrow-smith, chairman, Dr. Francis W. White, secretary.

ON the Richard B. Westbrook Free Lectureship of the Wagner Free Institute of Science, four lectures on Invisible Light, illustrated with experiments and lantern slides, are being given by Professor Robert Williams Wood, of the Johns Hopkins University, on Tuesdays, February 9, 16 and 23 and March 2.

At the regular monthly meeting of the Cosmos Club, Washington, on February 8, General A. W. Greeley delivered an address on "The Continent of Antarctica."

PROFESSOR J. C. BOSE, of Calcutta, India, gave two lectures toward the end of January at the University of Illinois, the first on "Plant Autographs and their Revelations," the second on "The Curve of Life and Death."

THE annual Samuel D. Gross lecture has been delivered at the Jefferson Hospital, Philadelphia, by J. Chalmers Da Costa, professor of surgery at the Jefferson Medical College.

THE Galton dinner and lecture instituted last year by the Eugenics Education Society in honor of the memory of Sir Francis Galton, will be held this year, as before, on the anniversary of his birth, February 16. Professor J. A. Thomson will deliver a lecture which will deal with eugenics and the war.

WE learn from *Nature* that Professor George Forbes, who has been entrusted by Lady Gill with the duty of preparing a memoir of her late husband, would be glad to be favored with any letters which have been pre-

served by Sir David Gill's numerous correspondents; and would greatly appreciate any notes—narrative, historical, appreciative or anecdotal—relating to Sir David's life and personality. All original letters or other documents will be carefully preserved, and returned to the senders at as early a date as possible. Such communications should be addressed to Professor Forbes at 11 Little College Street, Westminster.

THE death is announced of Dr. Anthony Woodward, at one time assistant in the department of geology and for thirty-seven years librarian of the American Museum of Natural History, New York City.

M. ALFRED TOURNIER, formerly professor of viticulture at the University of California and later connected with the U. S. Department of Agriculture, was killed on December 12 in the war.

VICE-ADMIRAL SIR GEORGE NARES, K.C.B., F.R.S., the distinguished British navigator, commander of the *Challenger* and of Arctic and other scientific expeditions, died on January 15, at the age of eighty-four years.

MR. J. S. HARDING, connected with the British Meteorological Office from its establishment in 1854, until his retirement in 1906, died on January 11, at the age of seventy-five years.

DR. OTTO RÜSSLIN, professor of zoology in the Technical School at Karlsruhe, has died at the age of sixty-five years.

PROFESSOR J. ROSENTHAL, professor of physiology at Erlangen, has died at the age of seventy-seven years.

DR. KARL LIEBERMANN, professor of organic chemistry at Berlin, has died at the age of seventy-two years.

DR. OTTO SCHEUER, docent for applied chemistry at Geneva, has been killed while serving in the Austrian army.

AMONG the examinations announced by the New York State civil service commission on February 27 is one for assistant in paleontology in the state museum, at a salary of \$1,200.

Candidates must be graduates of an approved college with some experience in museum work. They should also be able to pass an examination covering the following: The principles and elements of general geology; the principles and elements of stratigraphic geology or stratigraphy, with definite knowledge of the classification of the geological formations, more specially and in some detail, those of the Paleozoic system; the principles and elements of general biology; the elements of zoology, specially of the branches herewith named: morphology and classification of animals; embryology; the theories and demonstrations of phylogeny and evolution; the principles and elements of botany with special reference to classification; familiarity with the local flora and the histology of trees.

THE Royal Academy of Medicine of Turin announces that the thirteenth Riberi prize of the value of £800 is offered for the best medical research work presented before December 31, 1916. Particulars may be obtained from Dr. V. Oliva, secretary of the academy.

AN emergency appropriation of \$10,000 was made by the Kansas legislature on February 2 to finance the fight of the state against the foot and mouth disease in four counties under federal quarantine. The action followed a special message from Governor Capper asking the appropriation.

ACCORDING to the London correspondent of the *Journal* of the American Medical Association the scarcity of physicians created by the war is illustrated by the statement of the secretary of the Wolverhampton General Hospital, at a meeting of the committee. He could well remember the time when it was quite a common thing, when they advertised for a house surgeon or physician, to receive from ten to twenty applications for one post. Things gradually became worse, however, until, advertise as they would, they absolutely failed to get any applications for the post vacant. He was sent off to London and visited nine of the leading medical schools, and the result was that after extreme difficulty the resident post was filled. As soon as it was known that medical officers were wanted in the army and navy,

all the resident medical staff volunteered. On two occasions it had been impossible for members of the honorary staff to see all the outpatients. He had gone to London again, and did the round of the medical schools. He could not find a single man who wanted employment as a doctor, and theirs was not the only hospital in such a position. They had had to fall back on medical women. But though obtainable, they too were scarce. Their resident staff now consists of one man and three women.

MR. WM. BARCLAY PARSONS has written to the editor of the *New York Times* as follows: "The recent accomplishing of transmitting speech between New York and San Francisco is an event that rightly has attracted public attention. It is an achievement of the very highest importance, and reflects great credit on all concerned. It is, however, a matter of great surprise that in no New York newspaper that I have seen has any mention been made of the man to whom the scientific honor is wholly due. Even the president himself congratulated Mr. Bell upon his accomplishment, overlooking the fact that the instruments used to send and receive the first transcontinental message were those used forty years ago, showing that whatever advance was indicated by the transmission of speech over 3,400 miles of wire was not due to the instruments at the ends. This great and heretofore never-accomplished feat is due entirely to the work of Professor Michael I. Pupin, of Columbia University, who, by certain simple devices, has made possible the use of long wires in telephony. Although the devices themselves are simple, their design was reached only after the most painstaking and elaborate mathematical analysis. The final result is intensely practical, but it is based on work of the highest order of pure science."

WITH a view of acquainting the public with the standards, and the results of recent experiments conducted on standardized raw cotton, the division of textiles of the U. S. National Museum has recently placed on exhibition in the cotton section the nine official grades of white American upland raw cotton;

also a series of samples of the waste cotton obtained from standardized graded cotton, and samples of No. 22's warp yarn made from the five standard full grades of raw upland cotton. The principal factors which mark the grade of a cotton are (1) the foreign matter or impurities, such as broken leaves, dirt, sand, strings, motes, naps, gin-cut fiber, etc., contained therein, and (2) color. The differences between the several grades can be determined only by the trained eye, but the lowering of the grade due to increasing amounts of foreign matter can be made evident by showing the actual amount of waste material obtained from a definite quantity of cotton. To demonstrate these differences, a certain quantity of graded cotton was carried through the regular operations preparatory to spinning, the amount of waste produced in each operation being carefully preserved, labeled and arranged in exhibition boxes. The series of samples illustrating these experiments, now on exhibition in the National Museum, begins with a box containing four samples, each of the five full grades of Standard Atlantic States Upland Cotton, showing "Good Ordinary," "Low Middling," "Middling," "Good Middling" and "Middling Fair," the last of which is the highest grade. The second series illustrates upland cotton picker waste, and comprises one sample from each of the five full grades of standard upland cotton extracted by the machines employed in opening and preparing raw cotton for the carding machine. The picker waste is thrown out by the four following machines: the preparer or opener, the breaker, the intermediate and the finisher. The third series comprises a box containing one sample each of card motes, card fly and card strippings, from the five full grades of standard upland cotton, and shows the matter thrown out as waste in carding raw cotton. The final box includes one sample of yarn spun from gray and bleached raw stock of each of the five grades of standardized eastern and western upland cotton and comprises 20 samples in all. Although the standard grades of cotton were established by the government some time ago, this is the first exhibit show-

ing the waste from the various processes of manufacture through which cotton passes.

THE fuel value of two pounds of wood is roughly equivalent to that of one pound of coal. This is given as the result of certain calculations now being made in the forest service laboratory, which show also about how many cords of certain kinds of wood are required to obtain an amount of heat equal to that in a ton of coal. Certain kinds of wood, such as hickory, oak, beech, birch, hard maple, ash, elm, locust, longleaf pine and cherry, have fairly high heat values, and only one cord of seasoned wood of these species is required to equal one ton of good coal. It takes a cord and a half of shortleaf pine, hemlock, red gum, Douglas fir, sycamore and soft maple to equal a ton of coal, and two cords of cedar, redwood, popular, catalpa, Norway pine, cypress, basswood, spruce and white pine. Equal weights of dry, non-resinous woods, however, are said to have practically the same heat value regardless of species, and as a consequence it can be stated as a general proposition that the heavier the wood the more heat to the cord. Weight for weight, however, there is very little difference between various species; the average heat for all that have been calculated is 4,600 calories, or heat units, per kilogram. A kilogram of resin will develop 9,400 heat units, or about twice the average for wood. As a consequence, resinous woods have a greater heat value per pound than non-resinous woods, and this increased value varies, of course, with the resin content. The available heat value of a cord of wood depends on many different factors. It has a relation not only to the amount of resin it contains but to the amount of moisture present. Furthermore, cords vary as to the amount of solid wood they contain, even when they are of the standard dimension and occupy 128 cubic feet of space. A certain proportion of this space is made up of air spaces between the sticks, and this air space may be considerable in a cord made of twisted, crooked and knotty sticks. Out of the 128 cubic feet, a fair average of solid wood is about 80 cubic feet. It is pointed out, however, that heat

value is not the only test of usefulness in fuel wood and since 95 per cent. of all wood used for fuel is consumed for domestic purposes, largely in farm houses, such factors as rapidity of burning and ease of lighting are important. Each section of the country has its favored woods and these are said to be, in general, the right ones to use. Hickory, of the non-resinous woods, has the highest fuel value per unit volume of wood, and has other advantages. It burns evenly, and, as housewives say, holds the heat. The oaks come next, followed by beech, birch and maple. Pine has a relatively low heat value per unit volume, but has other advantages. It ignites readily and gives out a quick hot flame, but one that soon dies down. This makes it a favorite with rural housekeepers as a summer wood, because it is particularly adapted for hot days in the kitchen. The fuel qualities of chestnut adapt it particularly to work in brass foundries, where it gives just the required amount of heat and it is therefore in favor. Coastwise vessels in Florida pay twice as much for Florida buttonwood as for any other, because it burns with an even heat and with a minimum amount of smoke and ash. The principal disadvantage of the resinous pines is their oily black smoke.

THE museum of the California Academy of Sciences has received as a gift the large collection of marine, freshwater and land shells assembled by the late Henry Hemphill. The generous donor is Mrs. Charlotte Hosmer, of Oakland, California, the daughter of Mr. Hemphill. The collection contains between 60,000 and 70,000 specimens, representing 12,000 to 15,000 species, and is particularly rich in west coast species. The museum of the academy has also recently acquired the entire Lowe collection of Indian baskets, pottery, stone implements, Navaho and Chilkat blankets, and miscellaneous objects of Indian manufacture and use. This collection comprises more than 1,500 Indian baskets, and several hundred pieces of pottery and miscellaneous objects. The collection of baskets, which is said to be one of the most complete and valuable in existence relating to the

Pacific coast tribes, is the result of many years devoted to the subject by the late Professor and Mrs. T. S. C. Lowe, of Pasadena. The collection comes to the academy as an indefinite loan through the generosity of Hon. Wm. M. Fitzhugh, of San Francisco. Mr. Fitzhugh not only gives the collection, but will also meet all the expenses of labeling, card cataloguing, providing cases of the best type and installing the collection in the academy's new museum building now under construction in Golden Gate Park.

By an amendment to the by-laws recently adopted by the Academy of Natural Sciences of Philadelphia, the members can now borrow certain books to be designated by the librarian and the library committee. The library has been exclusively for reference, no one having been allowed to take books from the building, since 1859.

THERE has been a decline of more than 6,000 applications for patents during 1914 in Great Britain. Whereas in 1913 the number of patents applied for was over 31,000—practically the same as the preceding year—the total of 1914 amounts to barely 25,000. The causes of this falling off are said to be the interference with certain trades consequent upon the war and the cessation of applications from hostile countries. As these causes apply to only the last five months of the year, the decrease during that period amounts to about one half.

A SERIES of six popular demonstrations in science has been arranged by Syracuse University and the Technology Club of Syracuse, as follows:

January 14—The production and application of electricity: Dean William P. Graham, of Smith College of Applied Science.

January 21—Some of our common birds and how they are helpful or harmful: Dr. Chas. C. Adams, forest zoologist of the New York State College of Forestry.

January 28—Bacteria, friends and foes: Professor H. N. Jones, of the department of bacteriology, Syracuse University.

February 4—Gas engines—their construction and operation: Mr. George Babcock, expert with the Franklin Automobile Co.

February 11—How timber decays and how this decay may be prevented: Dean Hugh P. Baker, of the New York State College of Forestry.

February 18—Illuminating and other gases and how they are produced and used in our industries: Dr. E. N. Pattee and Professor C. R. Hoover, of the department of chemistry of Syracuse University.

UNIVERSITY AND EDUCATIONAL NEWS

MR. GEORGE SKELTON YUILL, of London and Australia, has given a sum of \$20,000 to the University of Aberdeen to found a scholarship in chemistry in the memory of the arts class of 1864-68, of which he was a member. The scholarship will be held by a student of the university for the purpose of research within it, or for the study of the practical applications of chemistry elsewhere. Mr. James Campbell, LL.D., chairman of the governors of the North of Scotland College of Agriculture, has founded four bursaries or scholarships to be held by students of the university in the college.

It is stated that there are this year matriculated in the University of Berlin 7,037 men and 898 women, as compared with 8,200 men and 859 women last winter.

DR. WILLIAM H. PARK has offered his resignation as dean of the New York University Medical College because of the ruling of the department of health that its department heads shall not hold administrative positions elsewhere. Dr. Park is director of laboratories. He will retain his position as professor of bacteriology and hygiene in the college.

PROFESSOR DE LA VALLÉE POUSSIN, of the University of Louvain, will, as has already been announced, give a course of lectures at Harvard University. The lectures which will be in French are on Lebesgue Integrals. The first lecture will be given on February 16 and the course will be given twice (possibly three times) a week throughout the remainder of the academic year. There will also be supplementary lectures and explanations in English by Dr. Dunham Jackson.